



PATENT COOPERATION TREATY
PCT
INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

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| Applicant's or agent's file reference 67182-72222 | FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416) | |
| International application No. PCT/SE 03/01027 | International filing date (<i>day/month/year</i>) 18.06.2003 | Priority date (<i>day/month/year</i>) 19.06.2002 |
| International Patent Classification (IPC) or both national classification and IPC G01C3/06 | | |
| Applicant TRIMBLE AB et al. | | |
| <p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of sheets.</p> | | |
| <p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none">I <input checked="" type="checkbox"/> Basis of the opinionII <input type="checkbox"/> PriorityIII <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicabilityIV <input type="checkbox"/> Lack of unity of inventionV <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statementVI <input type="checkbox"/> Certain documents citedVII <input type="checkbox"/> Certain defects in the international applicationVIII <input type="checkbox"/> Certain observations on the international application | | |
| Date of submission of the demand 12.01.2004 | Date of completion of this report 26.02.2004 | |
| Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 | Authorized Officer: Dighaye, J-L Telephone No. +49 89 2399-2823  | |

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/SE 03/01027**

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-10 as originally filed

Claims, Numbers

1-10 as originally filed

Drawings, Sheets

1/4-4/4 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | |
|-------------------------------|-------------|------|
| Novelty (N) | Yes: Claims | 1-10 |
| | No: Claims | |
| Inventive step (IS) | Yes: Claims | 1-10 |
| | No: Claims | |
| Industrial applicability (IA) | Yes: Claims | 1-10 |
| | No: Claims | |

2. Citations and explanations

see separate sheet

1. The following documents are cited:

D1: EP-A-1 081 459

D2: EP-A-1 054 232

D3: EP-A- 987 517

2. Claim 1 is directed to a distance measuring apparatus having at least two dichroic reflecting surfaces arranged at a tilt angle. To that regard, the closest prior art appears to be D1, in particular the embodiment of Fig. 5 in which two such surfaces direct selected wavelengths to detector 21 and detector 23, respectively (*). However, D1 discloses another embodiment (Fig. 4) with a dichroic plate 118b perpendicular to the optical axis, and a prism 118 with a dichroic surface 18a.

According to claim 1, at least one of the tilted dichroic surfaces is arranged on a plate. Such an arrangement is unknown from D1.

D2 and D3 disclose embodiments using prisms, not plates. Thus claim 1 is novel in view of the available documents.

- (*) In view of that, if the application is prosecuted, it is suggested to draft claim 1 in the two-part form in view of D1. The passage "at least one of said dichroic surfaces arranged on a plate" would be the distinctive feature.

3. Apparently, in the present domain, there is a technical prejudice against dichroic plates used at a tilt angle in a converging beam, since this induces aberrations (present description, p. 4, ll. 4-6). Thus, when it comes to reduce the size of the optical components, it is foreseen to design the dichroic prism or prisms "in compact size" (see for instance D3, col. 6, l. 15 seq.), rather than use tilted dichroic plates, if necessary together with aberration-correcting means, as it is presently the case (p. 4, para. 2; claims 8-10). Hence an inventive step may be seen.

Incidentally, in technical areas other than distance measuring devices, tilted

dichroic plates are commonly used. Adapting them to the use in a converging beam, however, would still involve the step of overcoming a technical prejudice.

Finally, a dichroic coating formed on a tilted membrane would not introduce aberrations. The wording "optical membrane" is used in D3 (col. 3, l. 31; col. 5, ll. 47-48), however it is not used in the previously sense - the "membrane" of D3 is in effect generated inside a prism, not as a free floating membrane. And, as suggested in the present description, p. 4, l. 6, a membrane constituted by a very thin plate cannot be used in the present application since it would not be stable.

4. All the other claims are dependent claims.